THE STATUS OF THE HUYGENS MISSION

J.-P. Lebreton(1), and D. L. Matson(2)
(1) Research and Science Support Department of ESA, ESTEC, P.O. Box 299, 2200 AG Noordwijk, The Netherlands (2) Jet Propulsion Laboratory, California Institute of Technology, 4800 Oak Grove Drive, Pasadena, CA 91109, USA

Huygens is an entry probe designed to descend by parachute through the atmosphere, down to the surface, of Titan, Saturn's largest moon. Huygens rides Cassini to Saturn. The mission objectives are to characterise the physical properties and the chemical composition of the atmosphere and the nature of the surface. The main part of the Huygens mission occurs during the 2-2.5 hour parachute descent, starting at an altitude of about 160 km. The data are transmitted to Cassini during the descent and while on the surface. They are recorded on Cassini for later transmission to Earth. The discovery of an anomaly in the Huygens radio receivers during in-flight testing in 2000 led us to change the early orbits of Cassini around Saturn. This change was required to accommodate a new Probe-to-Orbiter telecommunication geometry that would be compatible with the Huygens receiver (on the orbiter) performance. The Probe mission is now planned for the third orbit, on 14 January 2005, after two flybys of Titan (in October and December 2004). Huygens will be released about 3 weeks before it reaches Titan. Huygens carries a payload of six instruments. An overview of the revised mission is presented. The status of the redevelopment is discussed.

Part of this work was carried out at the Jet Propulsion Laboratory, California Institute of Technology, under contract to NASA.